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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,687	03/31/2004	Patricius Aloysius Jacobus Tinnemans	081468-0308853	4349

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EXAMINER

NGUYEN, HUNG

ART UNIT PAPER NUMBER

2851

DATE MAILED: 07/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/813,687	TINNEMANS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Hung Henry V. Nguyen	2851	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 11-14, 19, 20 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-18 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-22 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-10, and 15-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Hofer et al (U.S.Pat. 6,828,772).

With respect to claims 1, 8, and 15, Hofer et al discloses a lithographic support system (5) comprising all structures set forth in the instant claim such as: a moveable support structure (20, 60) to support and move a substrate (40) the support structure comprising a clamp (60) for clamping the substrate (40) and a drive wheel edge assemblies (50, 55) can be regarded as a

Art Unit: 2851

compliant structure for rotating the substrate to compensate for at least one of a tilt and displacement between the substrate (40) and the clamp (60).

As to claims 2, and 16, Hofer teaches the support structure (5) comprises a robot arm (see figure 6) having a support frame (60) for holding the substrate (40).

As to claims 3, 9, and 17, Hofer et al discloses a rod (20) coupled to the support frame, and the rod comprising the compliant structure.

As to claim 4-5, Hofer et al discloses the support frame (60) comprises the compliant structure and the compliant structure (50, 55) provided on the clamp (60).

Regarding claim 6, Hofer et al discloses that the support frame is in a plane defined by a x-axis, and a z-axis being perpendicular to the x-axis and the y-axis, the compliant structure providing a compliance in at least one of the first rotation about the x-axis, a second rotation about the y-axis, and a z-direction parallel to the z-axis (see col.4, lines 46-67 and col.5, lines 19-50).

As to claim 7, Hofer et al discloses the compliant structure is arranged such that the support frame (60) is allowed to rotate about a predetermined center of rotation (see col.5, lines 25-30).

As to claim 10, Hofer et al discloses the compliant structure having a metal flexure (see figure 6A).

3. Claims 1-10, and 15-18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Segers et al (U.S.Pat. 6,404,483).

With respect to claims 1, 8, 15, 18 and 21, Segers et al discloses a lithographic apparatus and corresponding method (see figure 1) comprising all structures set forth in the instant claims

Art Unit: 2851

such as: a radiation system (LA) configured to provide a beam of radiation; a support structure (MT) for supporting a patterning device (M); a substrate holder (WT) for holding a substrate (W); a projection optical system (PL) for projecting the patterned formed on the patterning device onto the substrate; and a support system for holding and moving one of the substrate, the patterning device; the support structure (see figure 5A) having a clamp (134) for clamping the substrate (W) and a compliant structure (131) for rotating the substrate to compensate for at least one of a tilt and displacement between the substrate (W) and the clamp (134).

As to claims 2, and 16, Segers teaches the support structure (130) comprises a robot arm (see figure 5A) having a support frame (133) for holding the substrate (W).

As to claims 3, 9, and 17, Segers et al further discloses a rod (131) coupled to the support frame (133), and the rod comprising the compliant structure.

As to claim 4-5, Segers et al discloses the support frame (133) comprises a compliant structure (135a) provided on the clamp (see figure 5B).

Regarding claim 6, Segers et al discloses that the support frame is in a plane defined by a x-axis, and a z-axis being perpendicular to the x-axis and the y-axis, the compliant structure providing a compliance in at least one of the first rotation about the x-axis, a second rotation about the y-axis, and a z-direction parallel to the z-axis (see figures 5A-6B).

As to claim 7, Segers et al discloses the compliant structure is arranged such that the support frame (133) is allowed to rotate about a predetermined center of rotation (see col.7, lines 7-8).

As to claim 10, Segers et al discloses the compliant structure having a metal flexure (135a).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 8-10, 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki (U.S.Pat. 6,559,928) in view of Akiyama et al (U.S.Pat. 4,788,577).

With respect to claims 1-5, 8-10, 15-21, Aoki discloses a lithographic apparatus (100) and corresponding method, comprising substantially all of the limitations of the instant claims such as: a radiation system (see col.14, lines 25-27) configured to provide a beam of radiation (IL); a support structure (see col.14, lines 30-31) configured to support a patterning device (R) that imparts a desired pattern onto the beam of radiation; a substrate holder (12) for holding a substrate; a projection optical system (PL) for projecting the pattern formed on the patterning device onto the substrate; a support system (20) that holds and moves one of the substrates, the patterning device and an object the support system comprises: a robot arm having a support frame (23) for holding the substrate (P), a rod (see figure 1) coupled to the support frame (23).

Aoki does not expressly disclose "a compliant structure" as claimed. Akiyama et al discloses an exposure apparatus having a moveable support structure for supporting and moving a substrate.

The moveable support structure having a clamp for clamping the substrate and a compliant structure (18) for compensating for at least one of a tilt and displacement between the substrate and the clamp (see figure 6). It would have been obvious to one having ordinary skill in the art

Art Unit: 2851

at the time the invention was made to combine the teachings of Aoki and Akiyama et al to obtain the invention as specified in the above mentioned claims of the present invention. It would have been obvious to a skilled artisan to employ the compliant structure/metal flexure (18) as taught by Akiyama into the support system of Aoki for at least the purpose of compensating the tilt and displacement between the substrate and clamp and whereby the substrate is held and transported precisely.

***Response to Amendment***

6. Applicant's amendment filed May 17, 2006 has been entered. In view of the amendment, the objection to claim 1 is withdrawn.

Turning now to the prior art rejections, applicant's arguments have been carefully reviewed but they are not found persuasive. The applicant is reminded that the claimed subject matter to examination will be given their broadest reasonable interpretation consistent with the specification, and limitations appearing in the specification are not be read into the claims. In re Yamamoto, 740 F. 2d 1569, 1571, 222 USPO 934, 936 (Fed.Cir. 1984).

With this in mind, the discussion herein will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitation that is not in the claims or any argument that is irrelevant to or does not relate to any specific claimed language will not be warranted.

In response to applicant's arguments that Hofer'772 fails to teach that the wedge assemblies 50, 55 are configured to compensate for at least one of a tilt and displacement between the object and the clamp, as required by claim 1; the Examiner respectfully disagrees

Art Unit: 2851

with the applicant. In broadest sense, “to *compensate* is: to offset an error or to neutralize the effect of (variation)” (see Merriam Webster’s Collegiate Dictionary, Tenth Edition, on page 234). As clearly illustrated from the disclosure of Hofer’772 (see figure 6A), the semiconductor wafer/object (40) is forced upward along an incline area on the wedge assemblies 50 and 55, thus one of the functions of the wedge assemblies 50 and 55 is to secure the wafer and to neutralize the effect of variations such as the displacement between the wafer/object and the clamp (60) (see col.6, lines 2-24). Therefore, Hofer meets the limitations of the alternative recitation, as broadly recited in claim 1.

With the same reasons, Segers’483 meets the limitations of “a compliant structure configured to compensate for at least the displacement between said object and said clamp” because Segers teaches a compliant structure/arm (131) for rotating the substrate to offset the error/to compensate at least the displacement between the substrate (W) and the clamp (134) (see col.7, lines 10-25).

Turning to the rejection 35 U.S.C. 103(a) of claim 1 under the references of Aoki’928 and Akiyama’577, applicant argues that there is absolutely nothing in Akiyama’s 577 that teach or suggests that coupling 18 is configured to compensate for at least one of a tilt and displacement between said object and said clamp”; the Examiner disagrees with applicant’s conclusion. Akiyama’577 meets the mentioned limitation of claim 1 since Akiyama discloses the compliant structure (18) for compensating/offsetting the error of the displacement between the substrate and the clamp (see figure 6).



Art Unit: 2851

It is noted that the applicant does not separately argue the distinct patentability of the dependent claims. Therefore, it is believed that the dependent claims are not additionally patentable over and above the patentability of the independent claims.

***Allowable Subject Matter***

6. Claim 1 would be allowable if rewritten in independent form including all of the limitations of claims 2, 3 and 6 since the limitations of the composite claim appears to overcome the prior art rejections.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2851

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**Hung Henry V Nguyen**  
**Primary Examiner**  
**Art Unit 2851**

hvn  
7/16/06